

APPLICANT(S): BEN-DAVID, Ilan et al.

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AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled:

1. **(Currently Amended)** A color display device for displaying a more-than-three color image, the device comprising a driver control module to controllably activate one or more drivers of an array of sub-pixel elements of at least four different colors based on image data representing pixels of said color image in terms of at least three data components wherein said driver control module comprises:
 - a conversion module for converting said image data into converted sub-pixel data representing said color image in terms of four or more primary colors said conversion module comprises:
 - a first converter for converting said image data into intermediate sub-pixel data of four or more primary colors, and
 - a second converter for converting ~~based on a position of each said sub-pixel element independently~~ said intermediate sub-pixel data into said converted sub-pixel data using at least one conversion matrix, wherein the converted sub-pixel data depends on the intermediate sub-pixel data and a position of the pixel displaying the data, thereby allowing the same intermediate sub-pixel data to be converted to different converted sub-pixel data depending on the position of the pixel displaying the data, wherein data for each of said four or more primary colors of said converted sub-pixel data is in gray-level format, and
 - a controller to control said conversion module to convert said image data into said converted sub-pixel data based on said one or more display-attributes

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and said one or more image-attributes, wherein said controller is able to determine one or more values of said at least one conversion matrix based on at least one display attribute related to said display device and at least one image attribute related to said color image, and to provide said values of said at least one conversion matrix to said second converter.

2-4 (Cancelled)

5. (Cancelled)

6. (Previously Presented) The device of claim 1, wherein said conversion module comprises:

a first converter to convert the image data representing pixels of said color image in terms of at least three data components into first intermediate sub-pixel data of said four or more colors;

a second converter to convert the image data representing pixels of said color image in terms of at least three data components into second intermediate sub-pixel data of three or more colors; and

a combiner to combine said first and second intermediate sub-pixel data into said converted sub-pixel data,

wherein said controller is able to control at least one of said first and second converters and said combiner based on at least one of said display attributes and image attributes.

7. (Previously Presented) The device of claim 6, wherein said second converter is able to convert the image data representing pixels of said color image in terms of at least three data components using at least one conversion matrix, which is based on at least one of said display attributes and said image attributes.

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8. (Cancelled)

9. (Previously Presented) The device of claim 1, wherein said controller is able to determine one or more values of said conversion matrix based on one or more timing signals related to said image data.
10. (Previously Presented) The device of claim 1, wherein said driver control module comprises a sub-pixel processor to process said converted sub-pixel data, wherein said controller is able to control said processor to generate a sub-pixel signal based on at least one of said image attributes and said display attributes.
11. (Previously Presented) The device of claim 10 comprising an interface module to generate said driver signals based on said sub-pixel data signal.
12. (Previously Presented) The device of claim 1 comprising a memory to store display-related data representing said one or more display attributes.
13. (Previously Presented) The device of claim 1, wherein said one or more display-attributes comprise at least one attribute selected from the group consisting of a configuration of one or more defective sub-pixel elements within said array, a brightness non-homogeneity of said display device, and a color non-homogeneity of said display device.
14. (Previously Presented) The device of claim 1, wherein said one or more image-attributes comprise one or more attributes selected from the group consisting of a perceived bit-depth of pixels of at least part of said image, a viewed smoothness

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of at least part of said image, a brightness uniformity of at least part of said image, a color uniformity of at least part of said image, and a rendering scheme to be applied to at least part of said image.

15. (Previously Presented) The device of claim 1, comprising a display panel containing said driver control module and said array of sub-pixel elements.

16. (Previously Presented) The device of claim 1, wherein said array of sub-pixel elements comprises an array of liquid crystal elements.

17. (**Currently Amended**) A method of displaying a more-than-three color image on a display device comprising controllably activating one or more drivers of an array of sub-pixel elements of at least four different colors, based on image data representing pixels of said color image in terms of at least three data components, said one or more drivers to perform:

determining values of at least one conversion matrix based on at least one display attribute related to said display device and at least one image attribute related to said color image;

converting said image data into intermediate sub-pixel data of four or more primary colors; and

using said determined values of said at least one conversion matrix to convert
~~based on a position of each said sub-pixel element independently~~ said intermediate sub-pixel data into converted sub-pixel data, said converted sub-pixel data representing said color image in terms of four or more primary colors, wherein data for each of said four or more primary colors of said converted sub-pixel data is in gray-level format, wherein the converted sub-pixel data depends on the intermediate sub-pixel data and a position of the pixel displaying the data, thereby allowing the same

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intermediate sub-pixel data to be converted to different converted sub-pixel data depending on the position of the pixel displaying the data.

18. (Previously Presented) The method of claim 17 comprising generating one or more driver signals for activating said drivers based on one or more display attributes related to said display device and one or more image attributes related to said color image.

19-21. (Canceled)

22. (Previously Presented) The method of claim 17, wherein converting said image data comprises:

converting the image data representing pixels of said color image in terms of at least three data components into first intermediate sub-pixel data of said at least four primary colors;

converting the image data representing pixels of said color image in terms of at least three data components into second intermediate sub-pixel data of at least three primary colors;

combining said first and second intermediate sub-pixel data into said converted sub-pixel data; and

controlling at least one of converting said image data into said first intermediate sub-pixel data, converting said image data into said second intermediate sub-pixel data, and said combining, based on at least one of said display attributes and said image attributes.

23. (Previously Presented) The method of claim 22, wherein converting said image data into said second intermediate sub-pixel data comprises converting said

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image data using at least one conversion matrix, which is based on at least one of said display attributes and said image attributes.

24. (Cancelled)

25. (Previously Presented) The method of claim 17 comprising determining one or more values of said conversion matrix based on one or more timing signals related to said image data.

26. (Previously Presented) The method of claim 17 comprising processing said converted sub-pixel data and generating a sub-pixel signal based on at least one of said image attributes and said display attributes.

27. (Original) The method of claim 26 comprising generating said driver signals based on said sub-pixel data signal.

28. (Previously Presented) The method of claim 18, wherein said one or more display-attributes comprise at least one attribute selected from the group consisting of a configuration of one or more defective sub-pixel elements within said array, a brightness non-homogeneity of said display device, and a color non-homogeneity of said display device.

29. (Previously Presented) The method of claim 18, wherein said one or more image-attributes comprise one or more attributes selected from the group consisting of a perceived bit-depth of pixels of at least part of said image, a viewed smoothness of at least part of said image, a brightness uniformity of at least part of said image, a color uniformity of at least part of said image, and a rendering scheme to be applied to at least part of said image.

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30. (**Currently Amended**) A color display system for displaying a more-than-three color image, the system comprising:

an input interface to generate image data signals representing pixels of said color image in terms of at least three data components; and

a driver control module to controllably activate one or more drivers of an array of sub-pixel elements of at least four different colors, based on said image data signals, wherein said driver control module is able to generate one or more driver signals for activating said drivers based on one or more position-dependent display attributes independently related to individual positions in said display device and one or more image attributes related to said color image.

31. (Cancelled)

32. (Previously Presented) The system of claim 30, wherein said driver control module comprises:

a conversion module to convert said image data signals into converted sub-pixel data signals representing said color image in terms of four or more colors; and

a controller to control said conversion module to convert said image data signals based on said one or more display-attributes and said one or more image-attributes, wherein data for each of said four or more primary colors of said converted sub-pixel data is in gray-level format.

33-35. (Canceled)

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36. (Previously Presented) The system of claim 32, wherein said driver control module comprises a sub-pixel processor to process said converted sub-pixel data signals, wherein said controller is able to control said processor to generate a sub-pixel signal based on at least one of said image attributes and said display attributes.

37. (Canceled)

38. (Previously Presented) The system of claim 30, wherein said one or more display-attributes comprise at least one attribute selected from the group consisting of a configuration of one or more defective sub-pixel elements within said array, a brightness non-homogeneity of said display device, and a color non-homogeneity of said display device.

39. (Previously Presented) The system of claim 30, wherein said one or more image-attributes comprise one or more attributes selected from the group consisting of a perceived bit-depth of pixels of at least part of said image, a viewed smoothness of at least part of said image, a brightness uniformity of at least part of said image, a color uniformity of at least part of said image, and a rendering scheme to be applied to at least part of said image.

40. (Previously Presented) The system of claim 30, comprising a display panel containing said driver control module and said array of sub-pixel elements.